II Jornada *PROA hospitalari* a Catalunya

20 de març de 2025, de 9 a 17 h

Recinte Modernista de Sant Pau
Sala Francesc Cambó
Hospital de la Santa Creu i Sant Pau
C/ Sant Antoni Maria Claret, 167
Barcelona

PROA en centros sociosanitarios

José Miguel Cisneros Herreros

Servicio de Enfermedades Infecciosas (UCEIMP)

Hospital Universitario Virgen del Rocío

Conflicto de interés

- No tengo

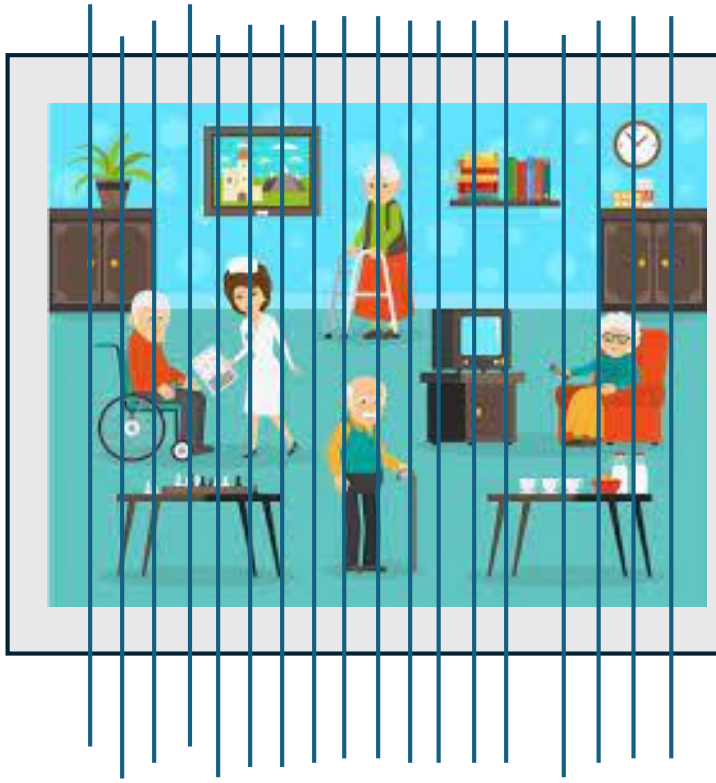
Guión: PROA en CCSS

1. **Necesidad: las resistencias bacterianas**
2. Características de los CCSS
3. Nuestra experiencia
4. Retos PROA

¿Cuántos de vosotros trabajáis en un CCSS?

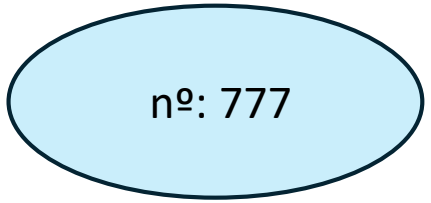
Emilio Morenatti, premio Pullitzer 2021

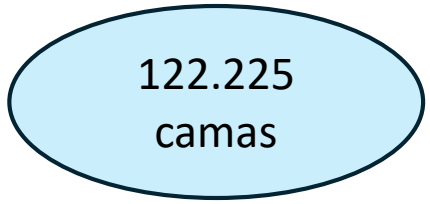
Escenarios del Sistema Sanitario



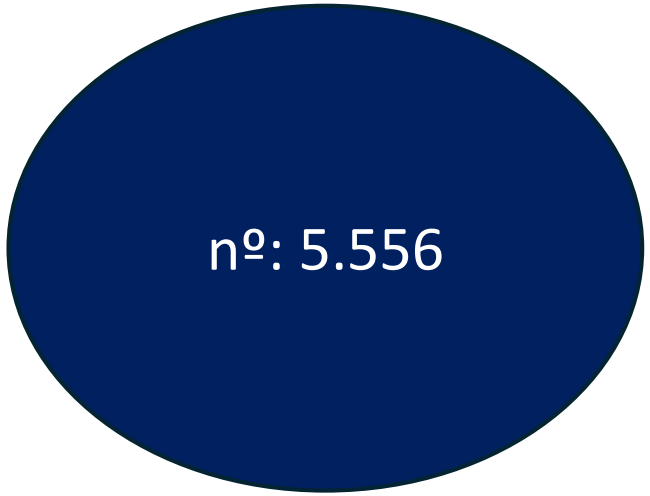
Magnitud

Hospitales[1]



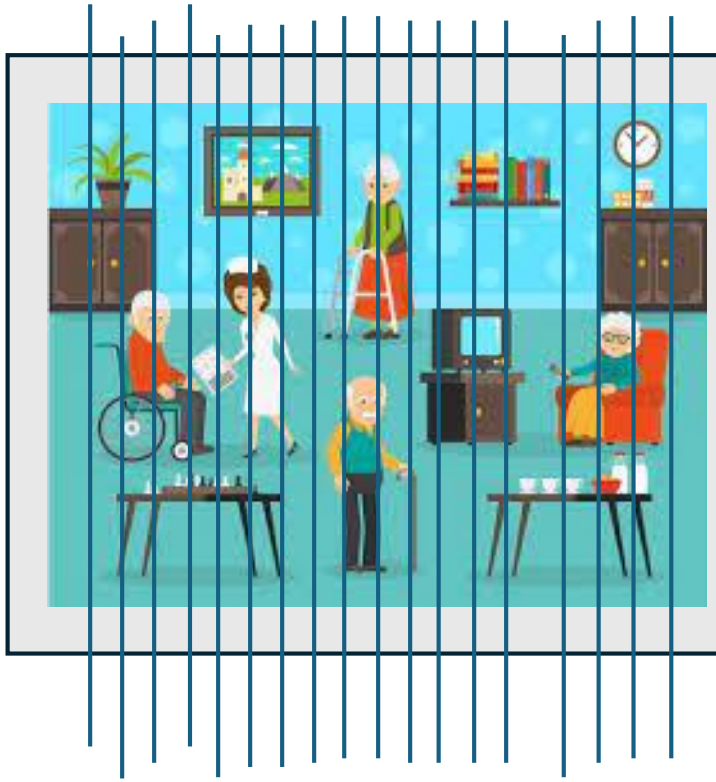


Centros Socio-Sanitarios[2]



1. https://www.sanidad.gob.es/estadEstudios/sanidadDatos/tablas/tabla22.htm
2. http://envejecimiento.csic.es/estadisticas/indicadores/residencias/index.html

Escenarios del Sistema Sanitario



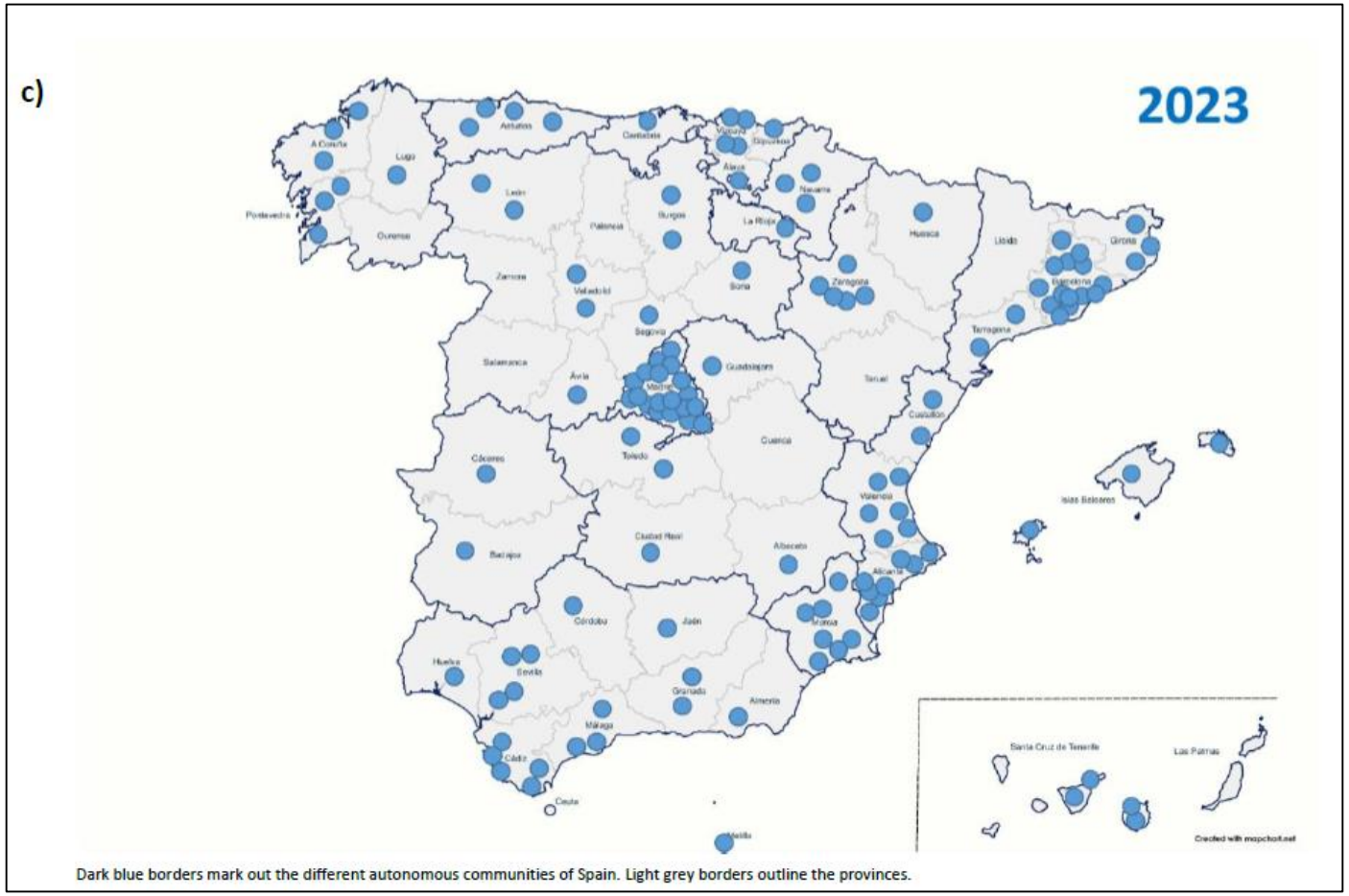
BMR

Burden of bacterial antimicrobial resistance among hospitalised patients in Spain: findings from three nationwide prospective studies

Germán Peñalva,[a,b] Rafael Cantón,[b,c] María Teresa Pérez-Rodríguez,[d,e] Juan José González-López,[b,f,g] Jesús Rodríguez-Baño,[b,h] Ester del Barrio-Tofiño,[f] Cristina Kirkegaard-Biosca,[f] Isabel Sánchez-Romero,[i] Andrea Gutiérrez-Villanueva,[i] Teresa Marrodán-Ciordia,[j] José Manuel Guerra-Laso,[j] Cristóbal del Rosario-Quintana,[k] Laura Suárez-Hormiga,[k] Jordi Cámara,[l] Mireia Puig-Asensio,[l,b] Eva Heredero,[m] María Antonia Sepúlveda,[m] Juan Carlos Rodríguez-Díaz,[n] Esperanza Merino,[n] Emilia Cercenado,[o,p] Sofía de la Villa,[o] María Siller,[q] Francisco Arnaiz,[q,b] Cristina Seral,[r,b] José Antonio Lepe,[a,b] José Miguel Cisneros,[a,b,s,*] and José Ramón Paño-Pardo,[r,b,s] the BMR_SEIMC Study Group[t]

BMR_SEIMC Study Group. *The Lancet Regional Health – Europe* 2025;51: 101220

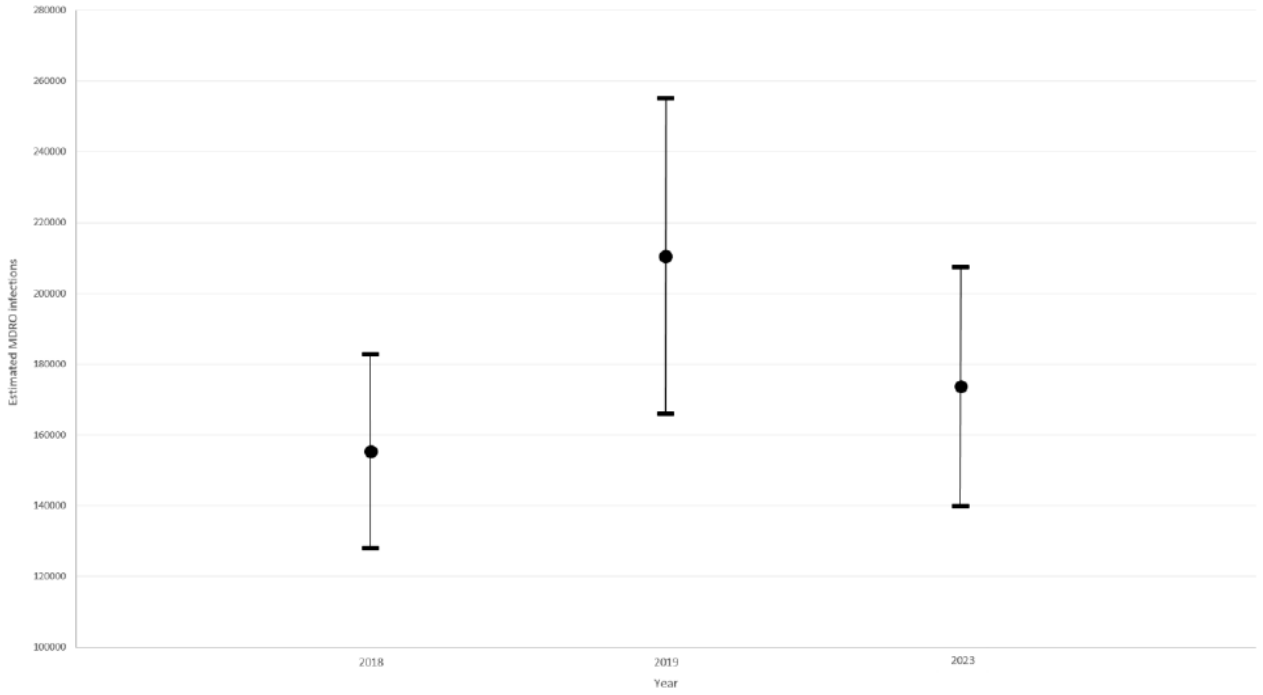
N = 130 hospitales



BMR_SEIMC Study Group. *The Lancet Regional Health – Europe* 2025;51: 101220

Incidencia de infección por BMR

***Figure S2*: Comparison of the estimated number of MDRO infections in Spain in the 2018, 2019 and 2023 studies**



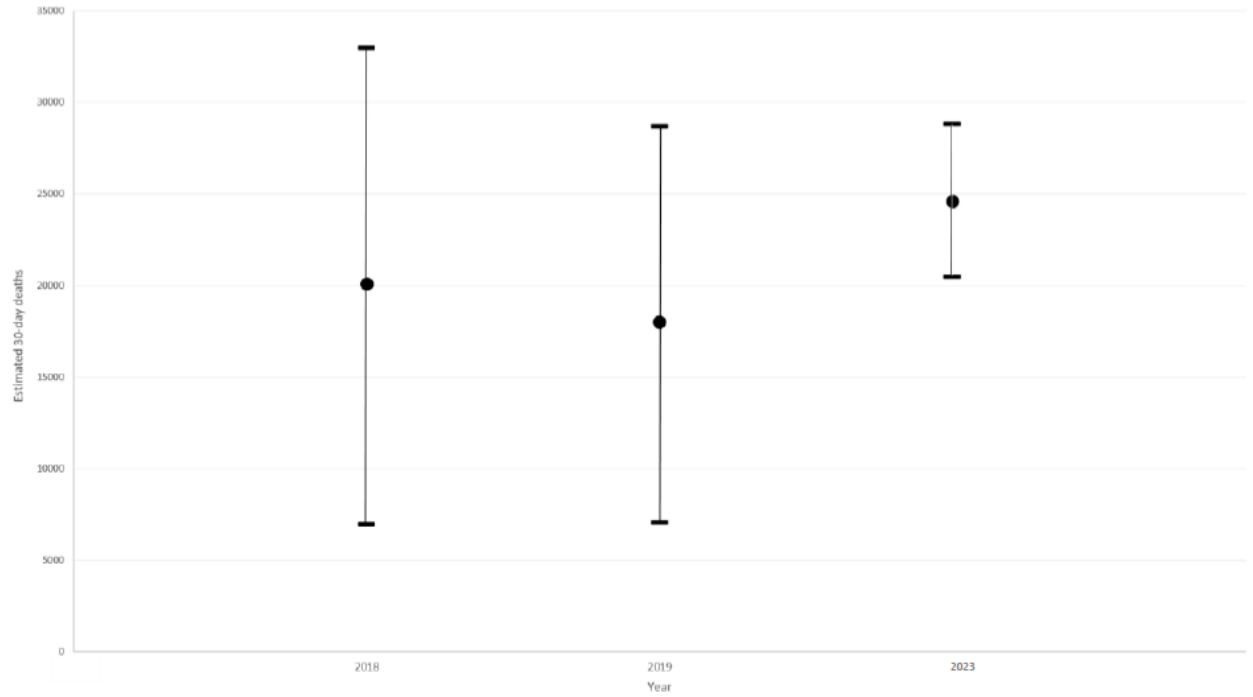
2018= **155,294** MDRO infect (127,928–182,569)
2019 =**210,451** MDRO infect (165,963–254,975)
2023 = **173,653** MDRO infect (139,814–207258)

Nosocomial infections: 56·1% ; 57·3% y **45·6%**

BMR_SEIMC Study Group. *The Lancet Regional Health – Europe* 2025;51: 101220

Mortalidad cruda 30 días

***Figure S3*: Comparison of the estimated number of all-cause 30-day deaths in Spain in the 2018, 2019 and 2023 studies**



2018 = **20,065 deaths** (6938–32,958)
2019 = **17,982 deaths** (7071–28,700)
2023 = **24,582 deaths** (20,461–28,796)

BMR_SEIMC Study Group. *The Lancet Regional Health – Europe* 2025;51: 101220

antibiotics

MDPI

Review

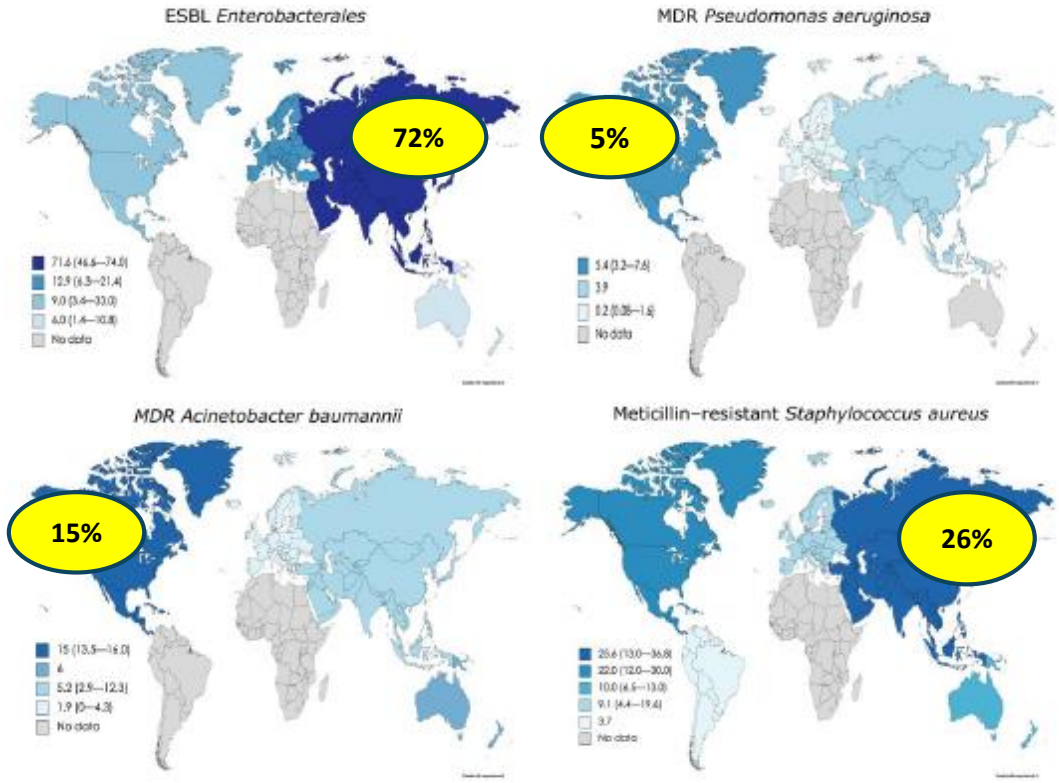
Prevalence and Risk Factors for Multidrug-Resistant Organisms Colonization in Long-Term Care Facilities Around the World: A Review

Ángel Rodríguez-Villodres [1,†], Cecilia Martín-Gandul [1,†], Germán Peñalva [1], Ana Belén Guisado-Gil [1,2], Juan Carlos Crespo-Rivas [1], María Eugenia Pachón-Ibáñez [1], José Antonio Lepe [1] and José Miguel Cisneros [1,*]

References finally included (*n*=134)

Figure 2. Prevalence of different MDRO in LTCF around the world. Maps were created through the online tool Mapchart.net (https://mapchart.net/world.html, accessed on 23 November 2020). ESBL, extended-spectrum ß-lactamase; MDR, multidrug-resistant.

- SARM = 13,2%
- Enterobacterales BLEE = 11,6%
- *A. baumannii* = 5,8%
- *C. difficile* = 5,1%
- Enterococo VR = 1,5%
- *P. aeruginosa* MR = 1,3%



Rodríguez-Villodres A et al. Antibiotics 2021

Factores de riesgo de colonización por BMDR

Table 3. Risk factors for multidrug-resistant organism colonization in long-term care facilities in the studies. Common characteristics and limitations.

Risk Factors for MDRO Colonization	Limitations and Common Characteristics
Age	An increase entails higher risk. There is not a cut-off established for colonization by MDROs.
Male sex	Confirmed in many studies by multivariate analysis
Dementia	An increase entails higher risk. There is not a cut-off established for colonization by MDROs.
Diabetes	Controversial results. Differences by MDRO type.
Cancer	Controversial results. Differences by MDRO type.
Chronic wound	Confirmed in many studies by multivariate analysis
Dependence	An increase entails higher risk. There is not a cut-off established for colonization by MDROs.
Medical devices	Confirmed in many studies by multivariate analysis
Previous antibiotic use	Confirmed in many studies by multivariate analysis
Previous hospitalization	Whether the risk could be increased by days of hospitalization is unknown.
Previous MDRO colonization	Controversial results. Differences by MDRO type.

Rodriguez-Villodres A. et al. Antibiotics **2021**

Densidad de población

BMR

Alta

Alta

Baja

Riesgo de transmisión de BMR

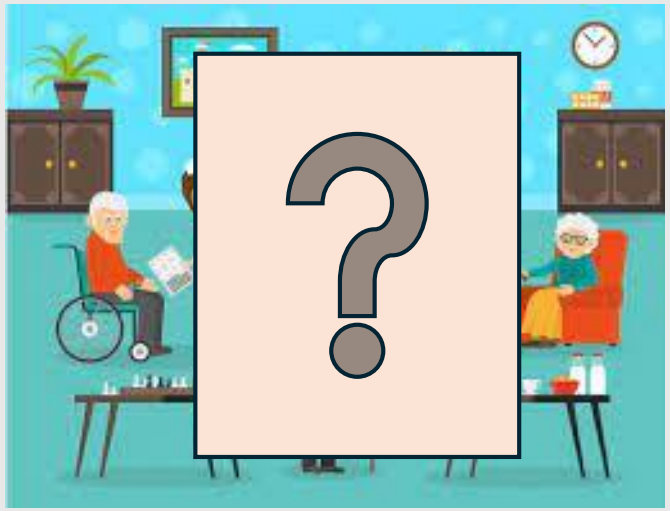
BMR

Alto

Alto

Bajo

¿Los PROA son útiles y seguros en los CCSS?



BMR

Clinical Microbiology and Infection 27 (2021) 1431–1438

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

Systematic review

Are antimicrobial stewardship interventions effective and safe in long-term care facilities? A systematic review and meta-analysis

Juan Carlos Crespo-Rivas [1, †], Ana Belén Guisado-Gil [1, 2, †], Germán Peñalva [1], Ángel Rodríguez-Villodres [1], Cecilia Martín-Gandul [1], María Eugenia Pachón-Ibáñez [1], José Antonio Lepe [1], José Miguel Cisneros [1, *]

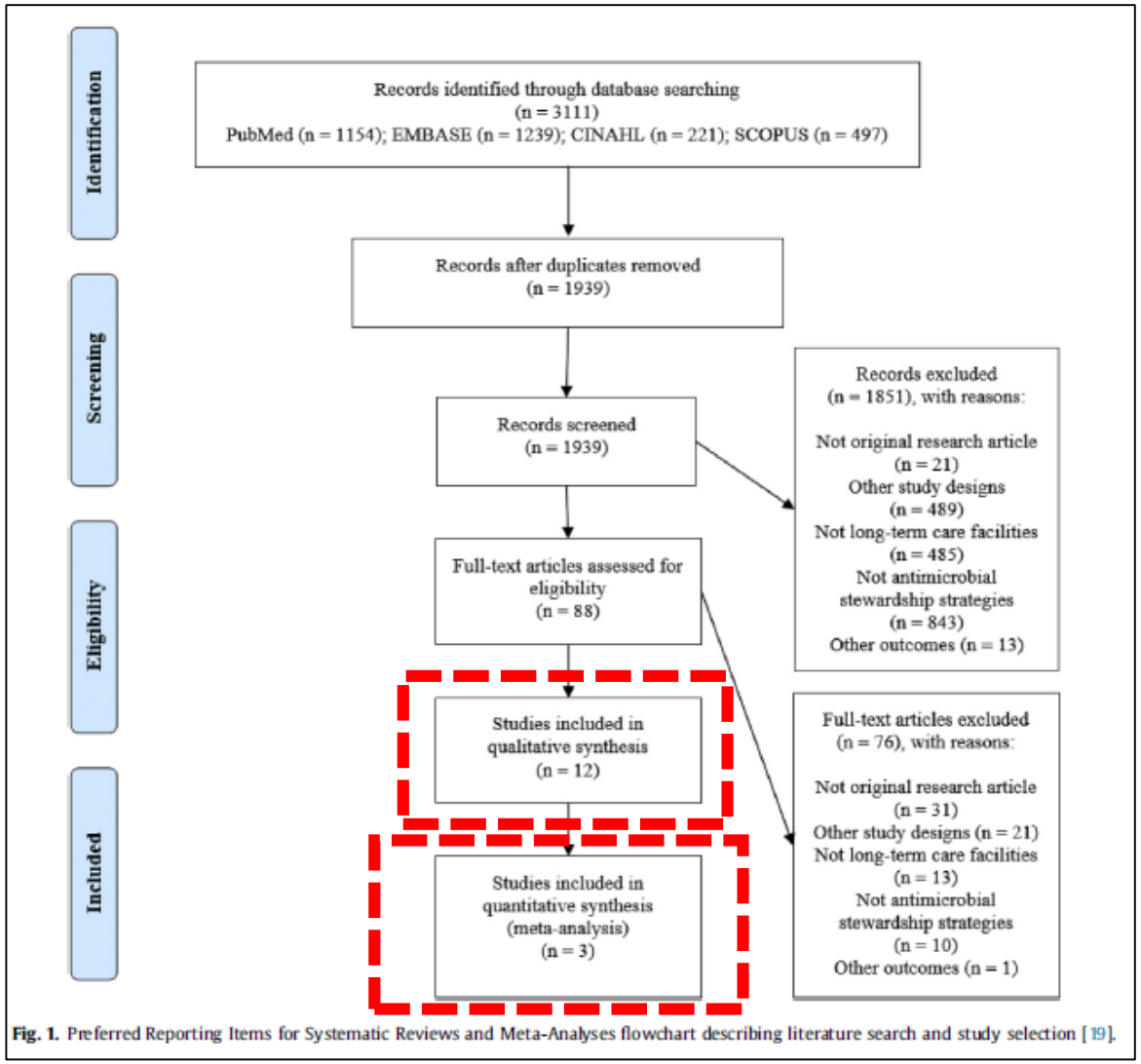


Fig. 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart describing literature search and study selection [19].

Crespo-Rivas JC et al. Clin Microbiol Infect 2021

Resultados: Consumo ATM; ingresos; mortalidad

DDD

Ingresos

Mortalidad

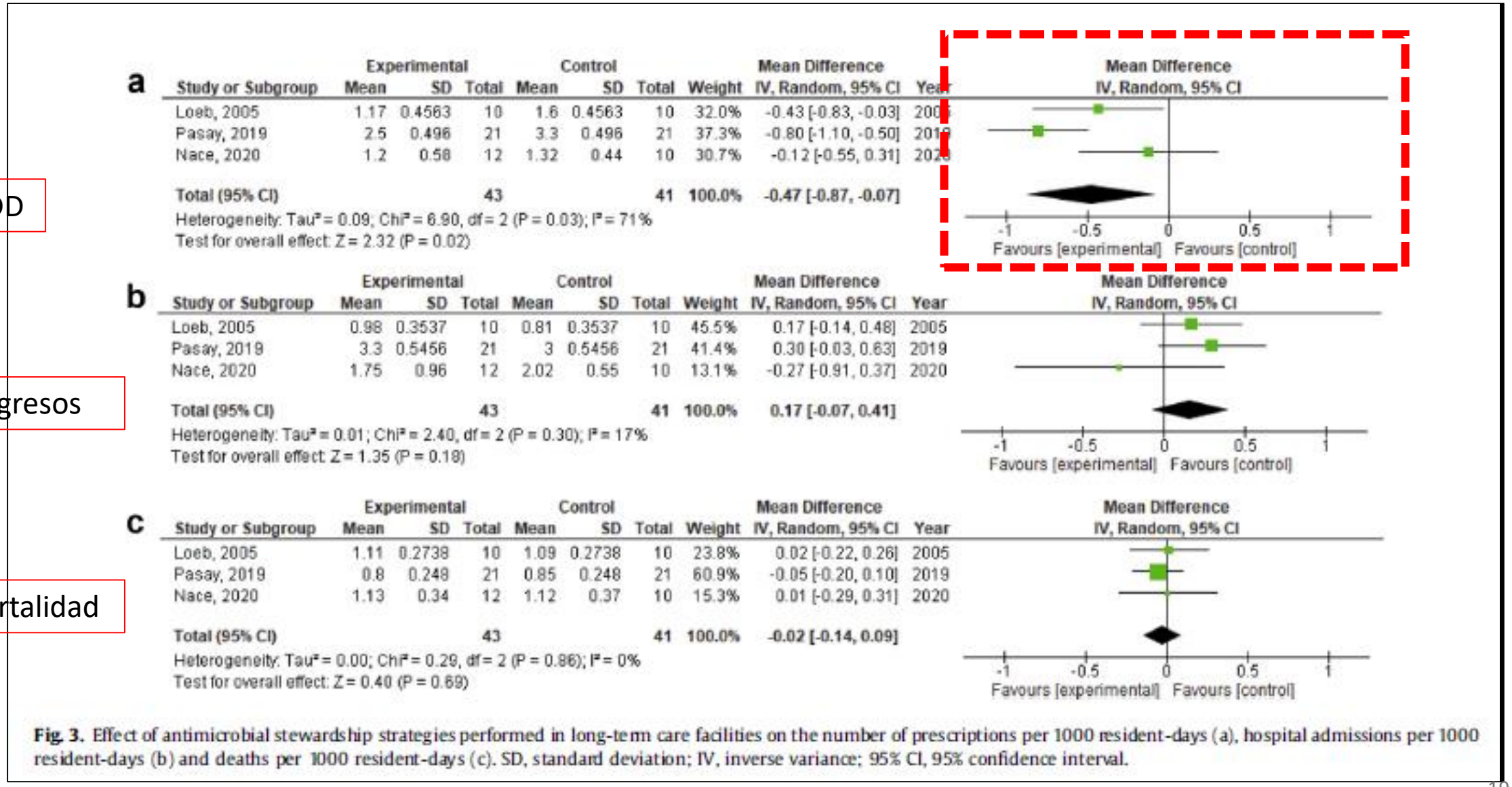
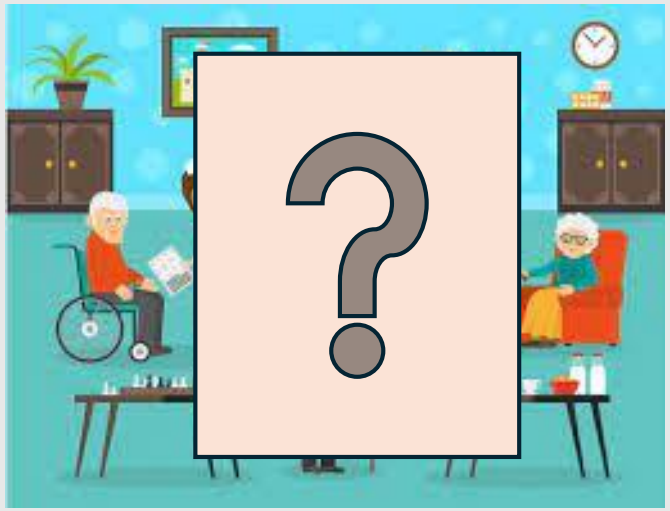


Fig. 3. Effect of antimicrobial stewardship strategies performed in long-term care facilities on the number of prescriptions per 1000 resident-days (a), hospital admissions per 1000 resident-days (b) and deaths per 1000 resident-days (c). SD, standard deviation; IV, inverse variance; 95% CI, 95% confidence interval.

Crespo-Rivas JC et al. Clin Microbiol Infect 2021

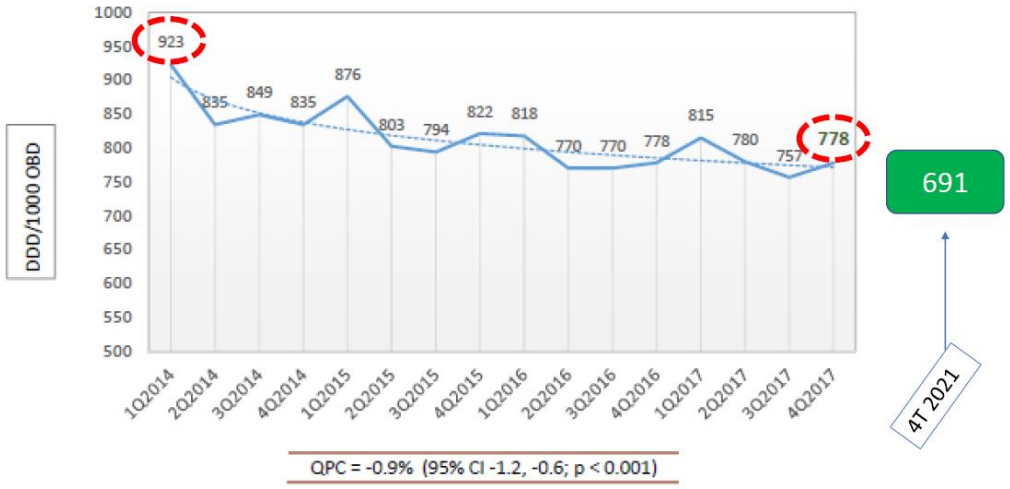
Consumo de antimicrobianos



BMR

Consumo de antimicrobianos en Andalucía

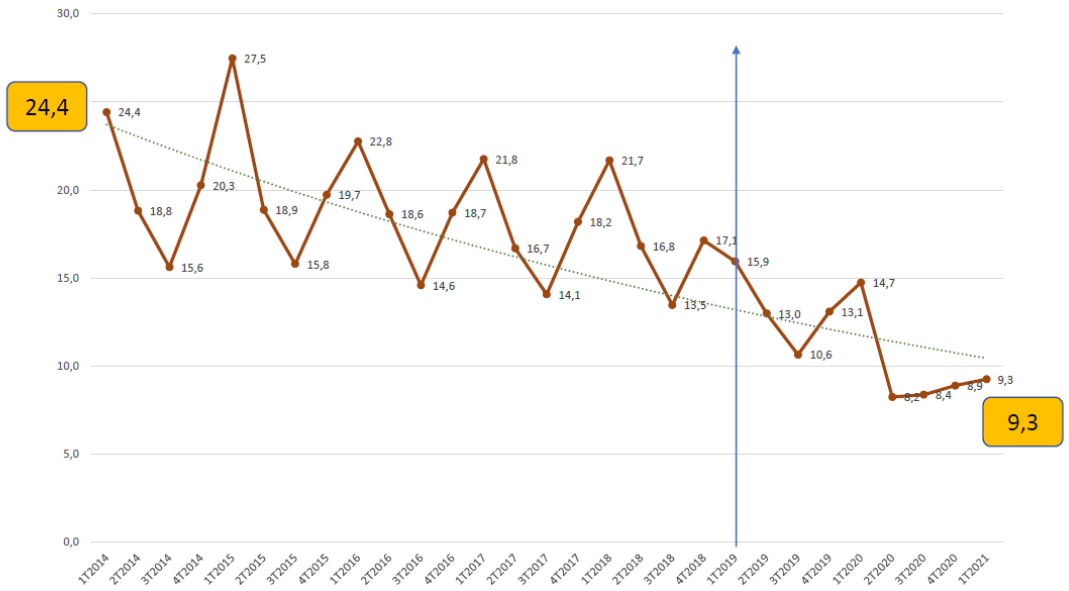
Consumo de antibióticos en hospitales



PIRASOA team_*Clin Microbiol Infect* 2020

?

Consumo de antibióticos en Atención Primaria



PIRASOA team_*Lancet Infect Dis* 2020

¿Consumo en CCSS?

Clinical Infectious Diseases

MAJOR ARTICLE

Clinical and Ecological Impact of an Educational Program to Optimize Antibiotic Treatments in Nursing Homes (PROA-SENIOR): A Cluster, Randomized, Controlled Trial and Interrupted Time-Series Analysis

Germán Peñalva,[1,a] Juan Carlos Crespo-Rivas,[1,a] Ana Belén Guisado-Gil,[1,2,3] Ángel Rodríguez-Villodres,[1] María Eugenia Pachón-Ibáñez,[1,3] Bárbara Cachero-Alba,[4] Blas Rivas-Romero,[5] Josefa Gil-Moreno,[6] María Isabel Galvá-Borras,[7] Mercedes García-Moreno,[8] María Dolores Salamanca-Bautista,[9] Manuel Bautista Martínez-Rascón,[10] María Rosa Cantudo-Cuenca,[11] Ruth Concepción Ninahuaman-Poma,[12] María de los Ángeles Enrique-Mirón,[13] Aurora Pérez-Barroso,[14] Inmaculada Marín-Ariza,[15] Miguel González-Florido,[16] María del Rosario Mora-Santiago,[17] Susana Belda-Rustarazo,[18] José Antonio Expósito-Tirado,[19] Clara María Rosso-Fernández,[20] María Victoria Gil-Navarro,[2,3] José Antonio Lepe-Jiménez,[1,3] and José Miguel Cisneros,[1,3] the PROA-SENIOR Study Group[b]

Clinical Trials Registration. NCT03543605.

Método

- A cluster, randomized, controlled trial and a before–after study with interrupted time-series analyses
- 30 consecutive months from July 2018 to December 2020
- 14 NHs in Andalusia, Spain.
  - Seven facilities implemented an ASP with a bundle of 5 educational measures (general ASP)
  - Seven added 1-to-1 educational interviews (experimental ASP).
- Primary outcome:
  - Overall use of antimicrobials, (DDD) per 1000 resident days (DRD).
- Secondary outcomes:
  - Antimicrobial prescribing profile
  - Hospital admissions due to infections, incidence density
  - prevalence of MDRO colonization (rectal y nasal)
  - satisfaction surveys

Peñalva G et al. Clin Infect Dis. 2023

Table S1. Educational resources and information provided to all the participating nursing homes

Educational resource	Information provided	Date
In-person start-up meetings (n=14)	Rationale, objectives and project description	Sep-Dec 2018
Follow-up meetings via videoconference (n=5x14)	Pre-intervention data Follow-up of variables collection and outcomes: antimicrobial use, MDRO prevalence and clinical outcomes Information on the risks and appropriate use of quinolones, co-amoxiclav and fosfomycin-trometamol Benchmarking and conclusions	1st. Mar-Apr 2019 2nd. Oct 2019 3rd. Feb 2020 4th. Jun 2020 5th. Oct 2020
Feedback reports (n=4)	Information prepared for and derived from the follow-up meetings, complemented with comparative charts, tables and graphs	1st. Feb 2019 2nd. Sep 2019 3rd. Jan 2020 4th. Oct 2020

Peñalva G et al. Clin Infect Dis. 2023

Figure S1. Educational interview form

PROA-SENIOR Educational Interview form for nursing homes

Version 220517

Data to be completed by the ASP advisor physician who interviews the prescribing physician

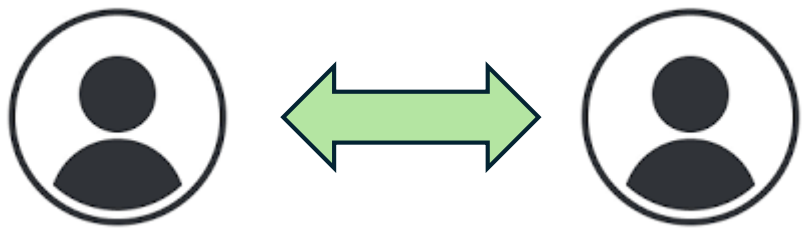
Date of Interview:

Centre:

District:

Prescriber: Dr

Advisor: Dr



Syndromic diagnosis of infection:

Confirmed aetiological diagnosis (if any):

Antimicrobial treatment(s) prescribed:
(name, dose, route of administration and estimated duration)

Once the previous data has been completed, the advisor asks the prescriber the following key questions to reflect on the evaluated case. The objective of the advisor is to reinforce the prescriber's successes, and help him/her to improve on the mistakes, discussing about the reasons why another option is better, reviewing with the prescriber the concept that is not clear, by using the recommendations of the local antimicrobial guidelines and the best available evidence. After this dialogue, the advisor rates the decision taken as correct YES, or incorrect NO, and notes it in the table. At the end of each form, the key concepts to be transmitted/remembered during educational interview are indicated for each question.

Peñalva G et al. Clin Infect Dis. 2023

Figure S1. Educational interview form

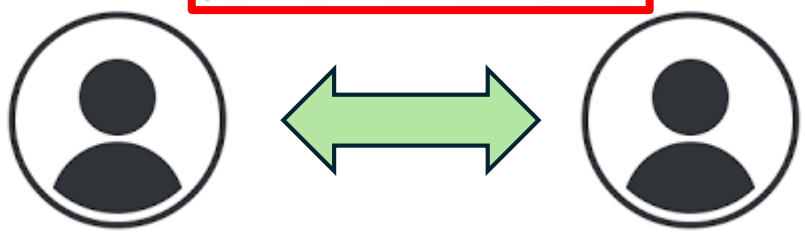
PROA-SENIOR Educational Interview form for nursi

Data to be completed by the ASP advisor physician who interviews the prescribing physician

Date of Interview:

Centre: District:

Prescriber: Dr Advisor: Dr



Syndromic diagnosis of infection:

Confirmed aetiological diagnosis (if any):

Antimicrobial treatment(s) prescribed:
(name, dose, route of administration and estimated duration)

Once the previous data has been completed, the advisor asks the prescriber the following key questions to reflect on the evaluated case. The objective of the advisor is to reinforce the prescriber's successes, and help him/her to improve on the mistakes, discussing about the reasons why another option is better, reviewing with the prescriber the concept that is not clear, by using the recommendations of the local antimicrobial guidelines and the best available evidence. After this dialogue, the advisor rates the decision taken as correct YES, or incorrect NO, and notes it in the table. At the end of each form, the key concepts to be transmitted/remembered during educational interview are indicated for each question.

Peñalva G et al. Clin Infect Dis. 2023

Table 1. Empirical antimicrobial treatment

	Key questions about prescribed antimicrobial therapy	Correct
1	In this patient, was empirical treatment initiation indicated?	Yes or No
2	Was sampling for microbiological diagnosis indicated for this patient? If the answer to the question above is yes, was it performed correctly?	Yes or No Yes or No
3	Was the chosen antimicrobial agent appropriate?	Yes or No
4	Was the dosing appropriate?	Yes or No
5	Was the planned treatment duration appropriate?	Yes or No
6	Has any intervention been done to improve patient's compliance and adherence to the treatment? Describe the intervention performed:	Yes or No

12, 5 asesorías por médico

Peñalva G et al. Clin Infect Dis. 2023

PROA-SENIOR
Antimicrobial Stewardship Programme for nursing homes

Version 220517

Satisfaction survey

Dear colleague:

We would appreciate your participation in this questionnaire. Knowing your opinion about the educational interview you have just participated in will help us improve our stewardship programme.

Did you find the educational interview useful?

Yes: ___ or No:___

Do you have any additional comments?

_____

_____

_____

Please send this survey by internal mail to the following address:

Peñalva G et al. Clin Infect Dis. 2023

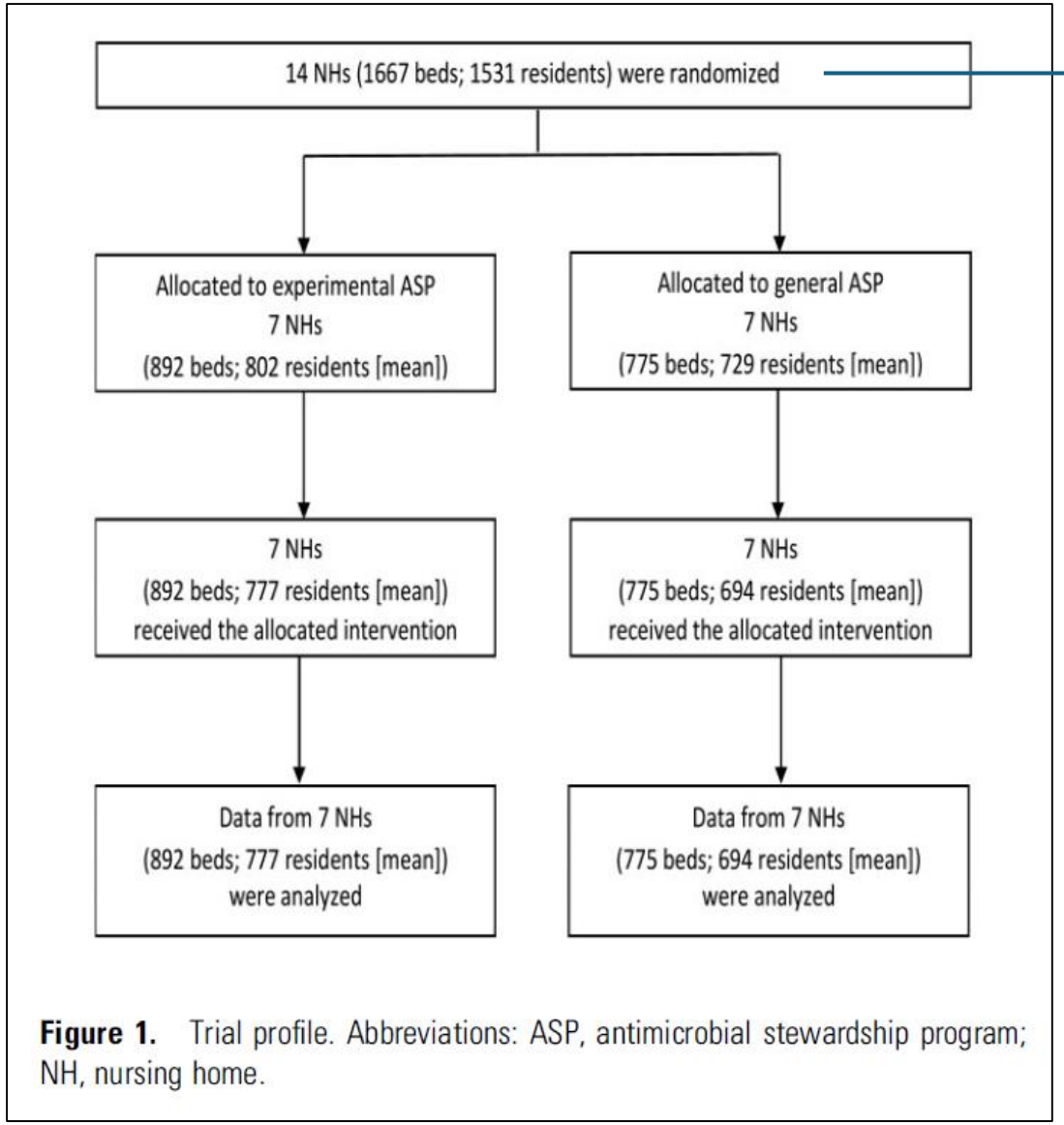


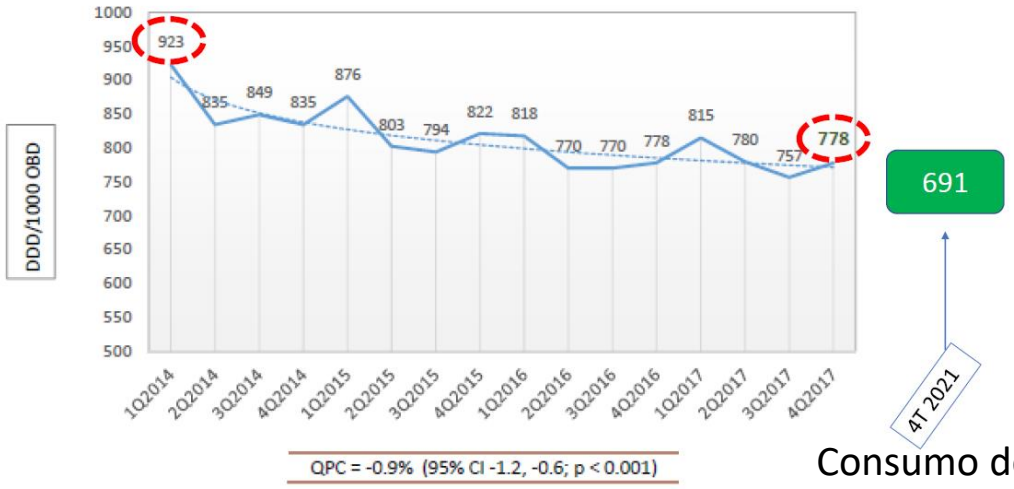
Figure 1. Trial profile. Abbreviations: ASP, antimicrobial stewardship program; NH, nursing home.

1531 residentes

Peñalva G et al. and PROA-SENIOR team. Clin Infect Dis 2023

Consumo de antimicrobianos en Andalucía

Consumo de antibióticos en hospitales



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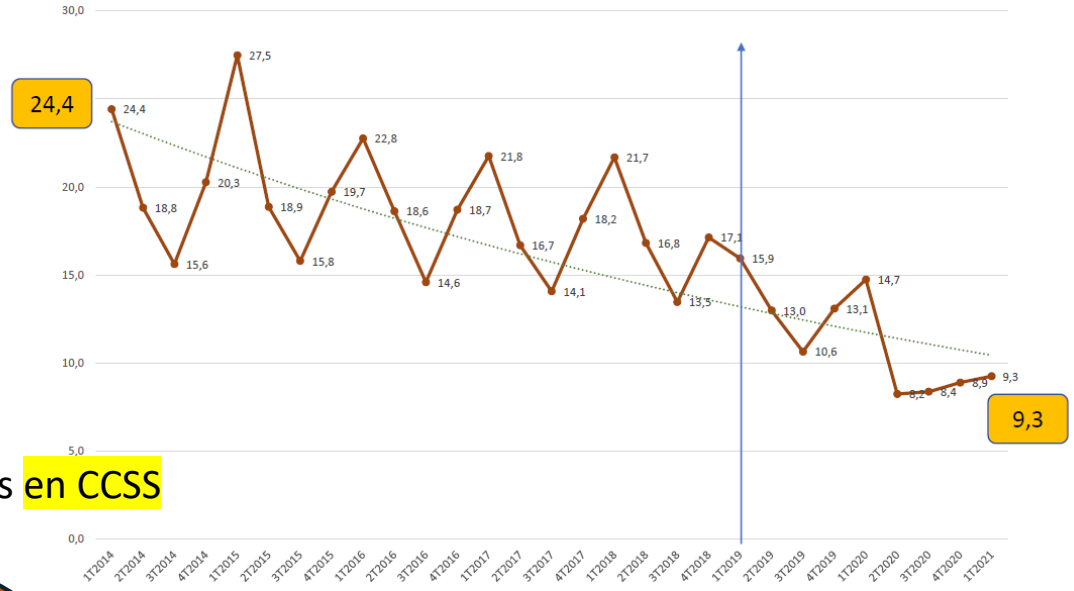
4T 2021

PIRASOA team_*Clin Microbiol Infect* 2020

Consumo de antibióticos en Atención Primaria



Consumo de antimicrobianos en CCSS

49.04
DDD/1000 est.

PIRASOA team_*Lancet Infect Dis* 2020

Peñalva G et al. and PROA-SENIOR team. *Clin Infect Dis* 2023

Table 1. Baseline Characteristics of Nursing Homes

Characteristic	Total	General ASP Group	Experimental ASP Group	*P* Value
Nursing homes, no.	14 (100%)	7 (50%)	7 (50%)	.99
Facility size, no. of beds	110 (86–140)	114 (70–157)	110 (91–134)	.90
Occupancy, no. of residents	99 (82–123)	100 (65–136)	99 (85–115)	.90
Dependent residents, %				
<85	7 (50)	4 (57)	3 (43)	.59
≥85	7 (50)	3 (43)	4 (57)	.59
No. of doctors	2.0 (1–4)	2.0 (1–3)	2.0 (1–4)	.62
Total antimicrobial use, DRD	49.04 (26.00–79.43)	45.93 (27.82–81.72)	52.15 (26.23–56.96)	.95
Amoxicillin–clavulanate, DRD	12.92 (7.87–16.24)	8.81 (7.10–14.43)	16.14 (4.95–24.86)	.26
Quinolones, DRD	9.80 (6.64–25.12)	9.36 (8.01–27.14)	10.23 (6.57–14.14)	.38
Fosfomycin–trometamol, DRD	1.05 (0.30–2.06)	1.40 (1.03–3.04)	0.30 (0.21–1.56)	.17
Amoxicillin, DRD	1.87 (1.19–2.50)	2.09 (0.99–2.62)	1.85 (1.48–1.93)	.95
Cephalosporins, DRD	6.36 (3.17–9.89)	9.02 (3.64–16.14)	4.42 (3.58–8.07)	.32
Cloxacillin, DRD	0.22 (0.03–1.15)	0.19 (0.05–0.43)	1.15 (0.06–1.97)	.28
Clarithromycin, DRD	0.14 (0.00–0.74)	0.00 (0.00–1.49)	0.27 (0.00–0.67)	.95
Azithromycin, DRD	4.96 (1.07–10.01)	6.70 (4.96–9.58)	1.97 (0.95–6.24)	.38
Cotrimoxazole, DRD	0.49 (0.00–1.49)	0.69 (0.14–1.22)	0.00 (0.00–2.61)	.95
Other antimicrobials, DRD	1.14 (0.58–2.30)	0.70 (0.48–1.30)	1.31 (0.82–3.72)	.32
Prevalence of resistant bacteria,[a] (%)	114/462 (24.7)	73/282 (25.9)	41/180 (22.8)	.51
Hospital admissions due to infections,[b] incidence density	0.255 (0.210–0.320)	0.260 (0.200–0.365)	0.250 (0.225–0.300)	.71

Peñalva G et al. Clin Infect Dis. 2023

¿Cuál es la calidad del uso de los ATM en los CCSS?

Table S9. Causes of inappropriate antibiotic use identified through the educational interviews

Item	n/163	Frequency (%)
Inappropriate duration of treatment	43/163	26.4
Inappropriate antibiotic choice	32/163	19.6
Antimicrobial treatment not indicated	15/163	9.2
Inappropriate dose	4/163	2.5
Inappropriate microbiological sampling	4/163	2.5
Total inappropriate prescriptions	77/163	47.2

47,2%

Peñalva G et al. and PROA-SENIOR team. Clin Infect Dis 2023

24,7%

Resistencias

1º

i

2º

Table 3. Effect of the Intervention on the Prevalence of Resistant Bacteria

Nursing Homes Group	Baseline Period	Intervention Period	Difference[a] (95% CI)	*P* Value[a]	Intergroup Difference[b] (95% CI)	*P* Value[b]
Total MDR bacteria						
All NHs	24.7% (114/462)	17.4% (67/385)	−7.3% (−12.7 to −1.7)	.012	…	
Experimental ASP group	22.8% (41/180)	18.5% (32/173)	−4.3% (−12.7 to 4.2)	.38	2.0% (−5.6 to 9.8)	.71
General ASP group	25.9% (73/282)	16.5% (35/212)	−9.4% (−16.4 to −2.0)	.01		
MDR-gram negative bacilli						
All NHs	16.2% (75/462)	9.1% (35/385)	−7.1% (−11.6 to −2.5)	.002	…	
Experimental ASP group	10.6% (19/180)	8.7% (15/173)	−1.9% (−8.2 to 4.5)	.67	−.8% (−6.5 to 5.3)	.92
General ASP group	19.9% (56/282)	9.4% (20/212)	−10.5% (−16.4 to 4.1)	.002		
ESBL *Escherichia coli*						
All NHs	14.3% (66/462)	7.3% (28/385)	−7.0% (−11.1 to −2.8)	.001	…	
Experimental ASP group	8.9% (16/180)	8.1% (14/173)	−.8% (−6.8 to 5.2)	.92	1.5% (−7.2 to 3.8)	.72
General ASP group	17.7% (50/282)	6.6% (14/212)	−11.1% (−16.7 to −5.3)	<.0001		
ESBL *Klebsiella pneumoniae*						
All NHs	0.6% (3/462)	1.8% (7/385)	1.2% (−.4 to 3.1)	.19	…	
Experimental ASP group	0.6% (1/180)	0.6% (1/173)	.0% (−2.6 to 2.7)	1.0	−2.2% (−5.5 to .8)	.14
General ASP group	0.7% (2/282)	2.8% (6/212)	2.1% (−.3 to 5.4)	.07		
Carbapenem-resistant Enterobacterales						
All NHs	0.0% (0/462)	0.0% (0/385)	.0% (−.9 to .8)	1.0	…	
Experimental ASP group	0.0% (0/180)	0.0% (0/173)	.0% (−2.2 to 2.1)	1.0	.0% (−1.7 to 2.2)	1.0
General ASP group	0.0% (0/282)	0.0% (0/212)	.0% (−1.7 to 1.3)	1.0		
MDR *Pseudomonas aeruginosa*						
All NHs	1.1% (5/462)	0.0% (0/385)	−1.1% (−2.5 to −.1)	.06	…	
Experimental ASP group	0.6% (1/180)	0.0% (0/173)	−.6% (−3.1 to −1.7)	0.99	.0% (−2.2 to 2.2)	1.0
General ASP group	1.4% (4/282)	0.0% (0/212)	−1.4% (−3.6 to −.6)	.06		
MDR *Acinetobacter baumannii*						
All NHs	0.2% (1/462)	0.0% (0/385)	−.2% (−1.2 to .8)	0.99	…	
Experimental ASP group	0.6% (1/180)	0.0% (0/173)	−.6% (−3.1 to 1.7)	0.99	.0% (−1.8 to 2.2)	0.99
General ASP group	0.0% (0/282)	0.0% (0/212)	.0% (−1.8 to 1.3)	1.0		
Methicillin-resistant *Staphylococcus aureus*						
All NHs	8.5% (39/458)	8.6% (33/384)	.1% (−3.7 to 4.0)	.92	…	
Experimental ASP group	12.3% (22/179)	9.8% (17/174)	−2.5% (−9.2 to 4.2)	.55	2.2% (−3.5 to 8.2)	.57
General ASP group	6.1% (17/279)	7.6% (16/210)	1.5% (−3.0 to 6.5)	.89		

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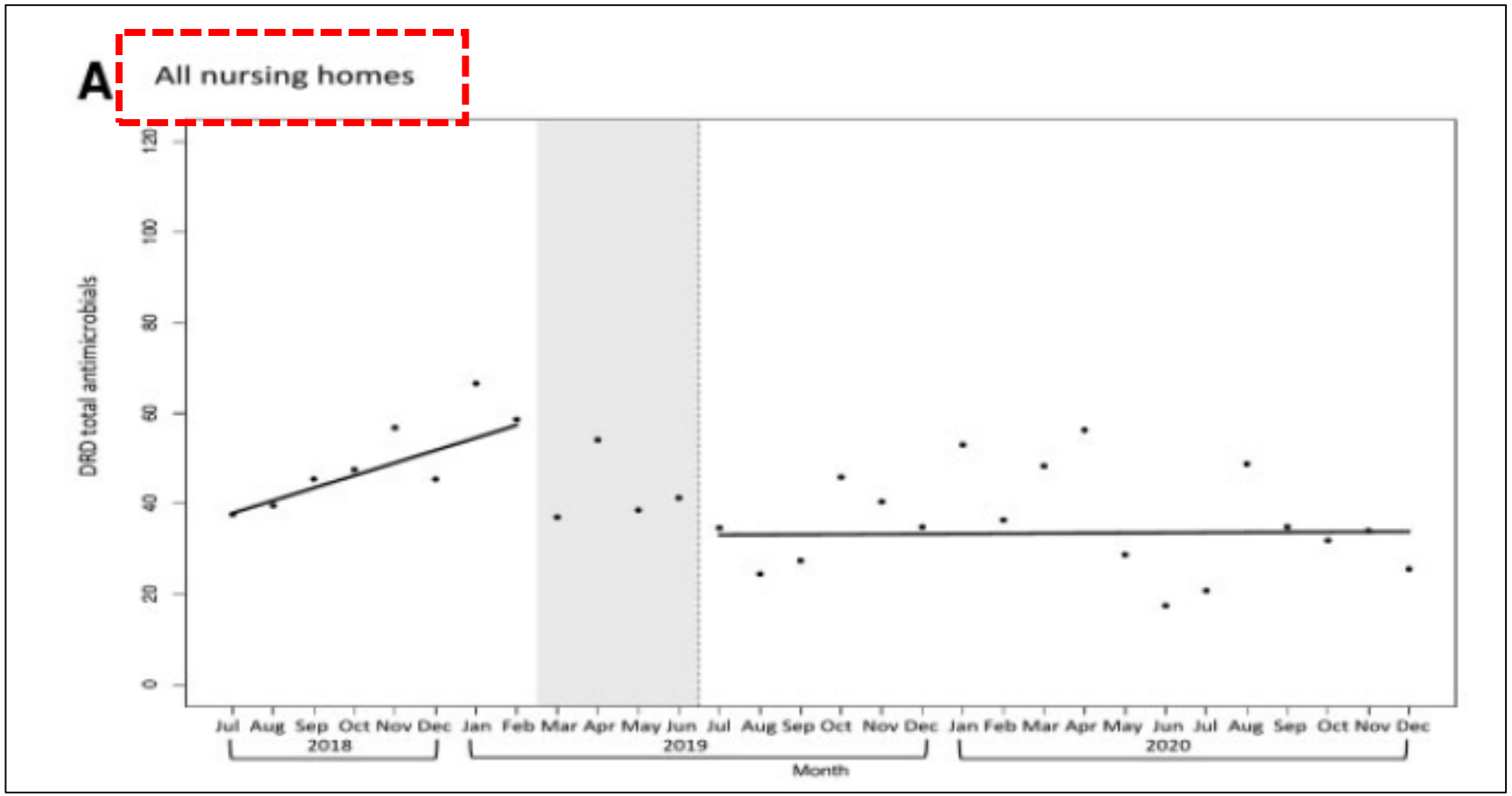
Evolución del consumo de ATM



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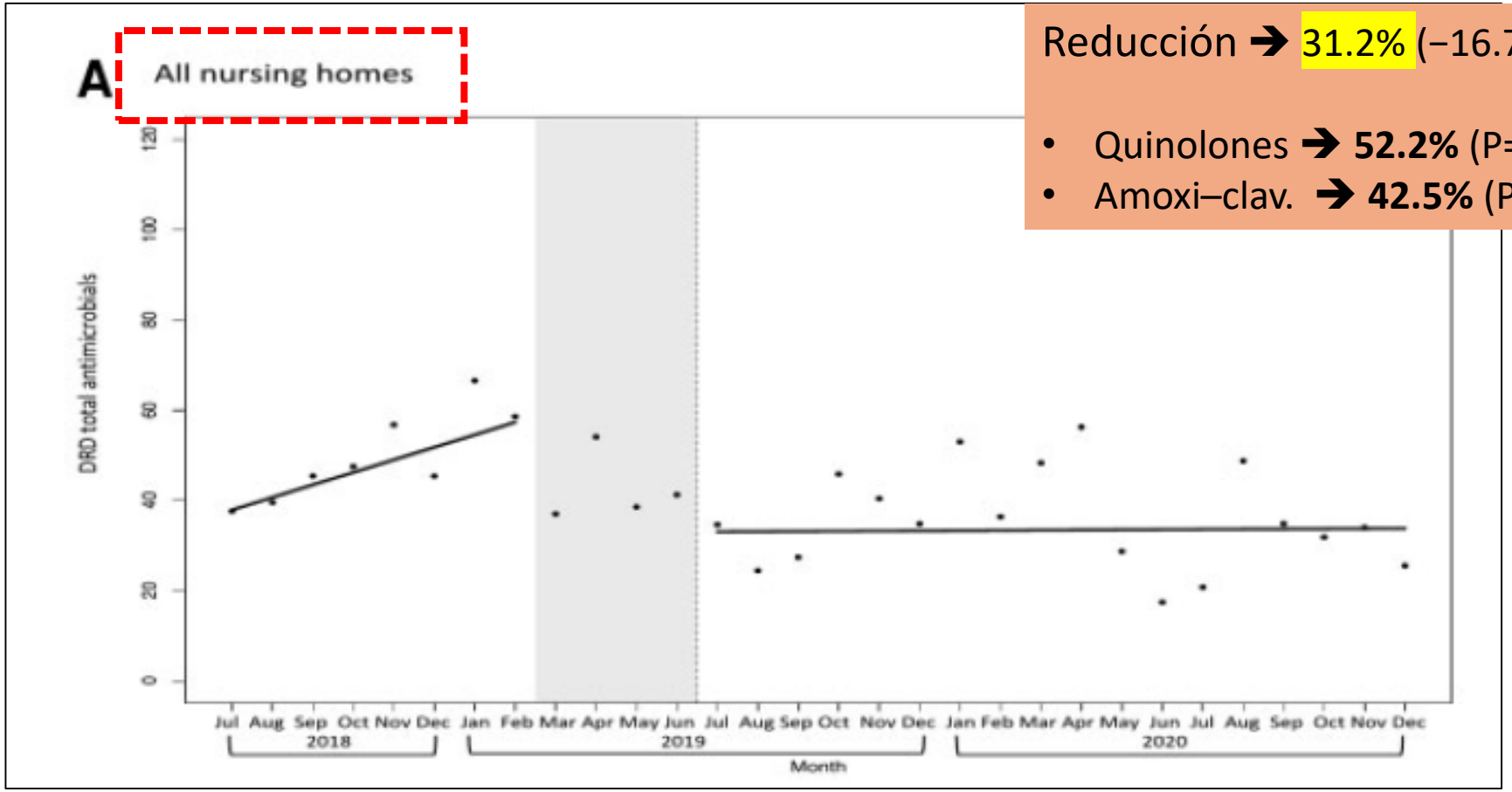
Evolución del consumo de ATM



Reducción ➔ 31.2% (−16.7 DRD; P=.045)

- Quinolones ➔ **52.2%** (P=.001)
- Amoxi–clav. ➔ **42.5%** (P=.006)

Two unexpected COVID-19 waves affected the centers increasing the overall mean use of antimicrobials by 40% (51.56 DRD; P<.0001).

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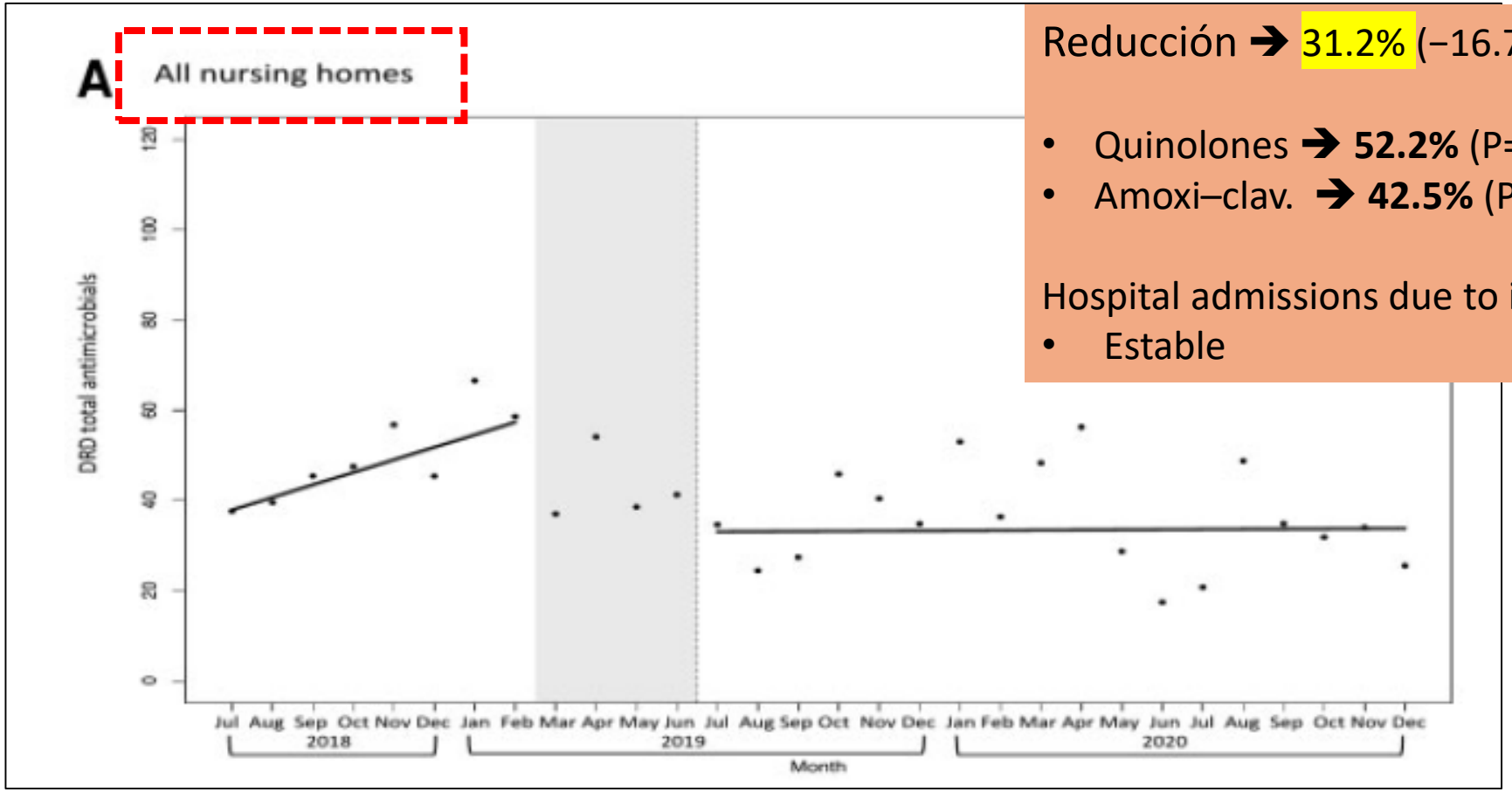
Evolución del consumo de ATM



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- Quinolones ➔ **52.2%** (P=.001)
- Amoxi–clav. ➔ **42.5%** (P=.006)

Hospital admissions due to infections:

- Estable

Two unexpected COVID-19 waves affected the centers increasing the overall mean use of antimicrobials by 40% (51.56 DRD; P<.0001).

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DDD/1000 RD

Todos los centros

Grupo control

Grupo Experimental

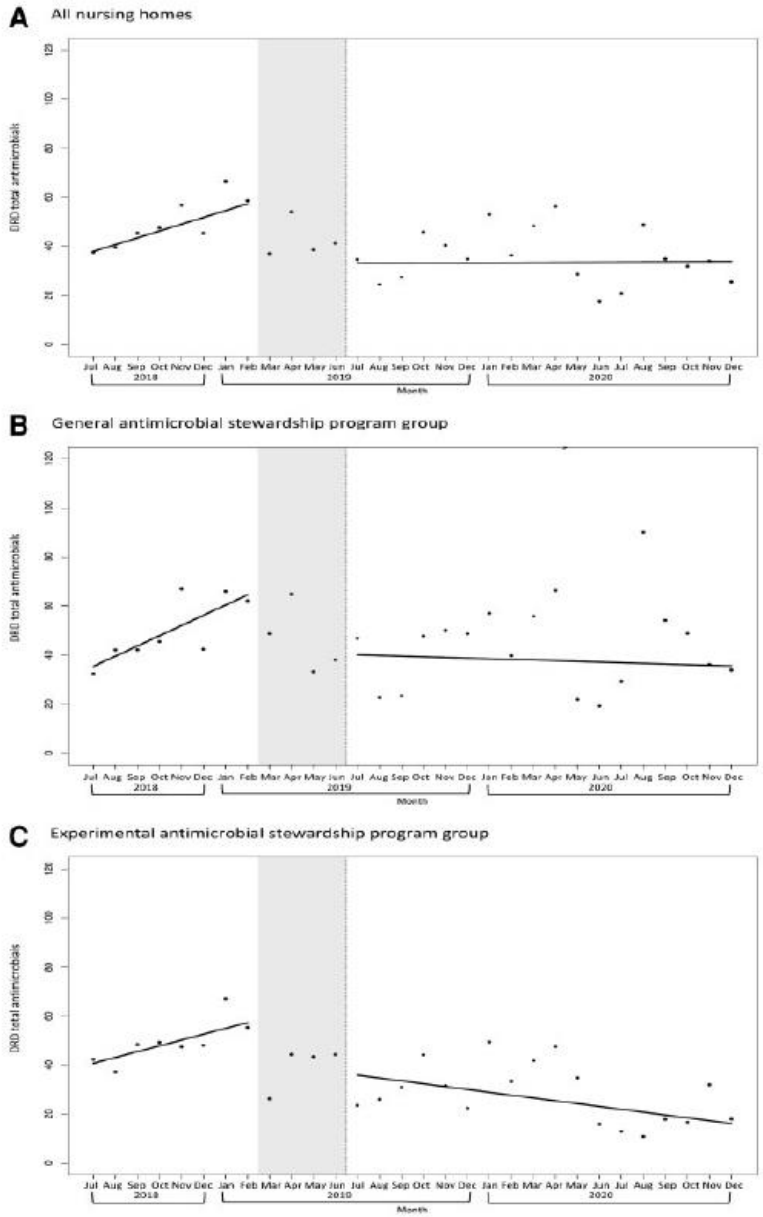

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Table 2. Effect of the Intervention on the Use of Total Antimicrobials, Amoxicillin–Clavulanic Acid, Quinolones, and Fosfomycin Trometamol

Nursing Homes Group	Baseline Period July 2018–February 2019, Mean (95% CI)	Intervention Period July 2019–December 2020, Mean (95% CI)	Mean Difference[a] (95% CI)	*P* Value[a]	Intergroup Mean Difference[b] (95% CI)	*P* Value[b]
Total antimicrobials						
All NHs	53.52 (33.89 to 73.14)	36.79 (23.45 to 50.14)	−16.72 (−27.04 to −9.66)	.045	…	
Experimental ASP group	50.78 (34.09 to 67.47)	29.36 (16.54 to 42.17)	−21.42 (−34.99 to −7.87)	.002	−14.62 (−40.76 to 11.52)	.25
General ASP group	56.40 (22.01 to 90.79)	43.98 (17.71 to 70.26)	−12.42 (−40.28 to 15.44)	.38		
Amoxicillin–clavulanic acid						
All NHs	13.59 (9.30 to 17.87)	7.82 (5.71 to 9.92)	−5.77 (−9.91 to −1.63)	.006	…	
Experimental ASP group	17.16 (10.87 to 23.46)	7.65 (4.06 to 11.24)	−9.51 (−15.57 to −3.46)	.002	−0.19 (−4.60 to 4.22)	.93
General ASP group	10.55 (4.60 to 16.49)	7.84 (4.53 to 11.16)	−2.71 (−8.36 to 2.95)	.35		
Quinolones						
All NHs	14.87 (9.58 to 20.15)	7.11 (3.63 to 10.58)	−7.76 (−12.22 to −3.30)	.001	…	
Experimental ASP group	11.46 (6.92 to 16.01)	4.35 (2.22 to 6.48)	−7.11 (−11.57 to −2.66)	.002	−5.48 (−12.24 to 1.28)	.10
General ASP group	18.16 (9.23 to 27.10)	9.83 (3.20 to 16.46)	−8.33 (−15.74 to −.93)	.028		
Fosfomycin trometamol						
All NHs	1.68 (.10 to 3.27)	2.35 (1.21 to 3.49)	0.67 (−.58 to 1.91)	.29	…	
Experimental ASP group	.89 (−.38 to 2.16)	1.59 (.63 to 2.56)	0.70 (−.31 to 1.71)	.17	−1.51 (−3.70 to 0.68)	.16
General ASP group	2.44 (−.45 to 5.33)	3.10 (.86 to 5.35)	0.66 (−1.62 to 2.94)	.57		

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24,7% basal

Resistencias

Table 3. Effect of the Intervention on the Prevalence of Resistant Bacteria

Nursing Homes Group	Baseline Period	Intervention Period	Difference[a] (95% CI)	*P* Value[a]	Intergroup Difference[b] (95% CI)	*P* Value[b]
Total MDR bacteria						
All NHs	24.7% (114/462)	17.4% (67/385)	−7.3% (−12.7 to −1.7)	.012	…	
Experimental ASP group	22.8% (41/180)	18.5% (32/173)	−4.3% (−12.7 to 4.2)	.38	2.0% (−5.6 to 9.8)	.71
General ASP group	25.9% (73/282)	16.5% (35/212)	−9.4% (−16.4 to −2.0)	.01		
MDR-gram negative bacilli						
All NHs	16.2% (75/462)	9.1% (35/385)	−7.1% (−11.6 to −2.5)	.002	…	
Experimental ASP group	10.6% (19/180)	8.7% (15/173)	−1.9% (−8.2 to 4.5)	.67	−.8% (−6.5 to 5.3)	.92
General ASP group	19.9% (56/282)	9.4% (20/212)	−10.5% (−16.4 to 4.1)	.002		
ESBL *Escherichia coli*						
All NHs	14.3% (66/462)	7.3% (28/385)	−7.0% (−11.1 to −2.8)	.001	…	
Experimental ASP group	8.9% (16/180)	8.1% (14/173)	−.8% (−6.8 to 5.2)	.92	1.5% (−7.2 to 3.8)	.72
General ASP group	17.7% (50/282)	6.6% (14/212)	−11.1% (−16.7 to −5.3)	<.0001		
ESBL *Klebsiella pneumoniae*						
All NHs	0.6% (3/462)	1.8% (7/385)	1.2% (−.4 to 3.1			
Experimental ASP group	0.6% (1/180)	0.6% (1/173)	.0% (−2.6 to 2			
General ASP group	0.7% (2/282)	2.8% (6/212)	2.1% (−.3 to 5.4			
Carbapenem-resistant Enterobacterales						
All NHs	0.0% (0/462)	0.0% (0/385)	.0% (−.9 to .8)	1.0	…	
Experimental ASP group	0.0% (0/180)	0.0% (0/173)	.0% (−2.2 to 2.1)	1.0	.0% (−1.7 to 2.2)	1.0
General ASP group	0.0% (0/282)	0.0% (0/212)	.0% (−1.7 to 1.3)	1.0		
MDR *Pseudomonas aeruginosa*						
All NHs	1.1% (5/462)	0.0% (0/385)	−1.1% (−2.5 to −.1)	.06	…	
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All NHs	0.2% (1/462)	0.0% (0/385)	−.2% (−1.2 to .8)	0.99	…	
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General ASP group	6.1% (17/279)	7.6% (16/210)	1.5% (−3.0 to 6.5)	.89		

the overall prevalence of MDROs decreased:

- **24.7% to 17.4%** (P=.012).

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PROA-SENIOR: impacto ecológico

Evolution of faecal microbiome diversity in long-term care residents during an antimicrobial stewardship programme and its association with multidrug-resistant bacterial colonisation

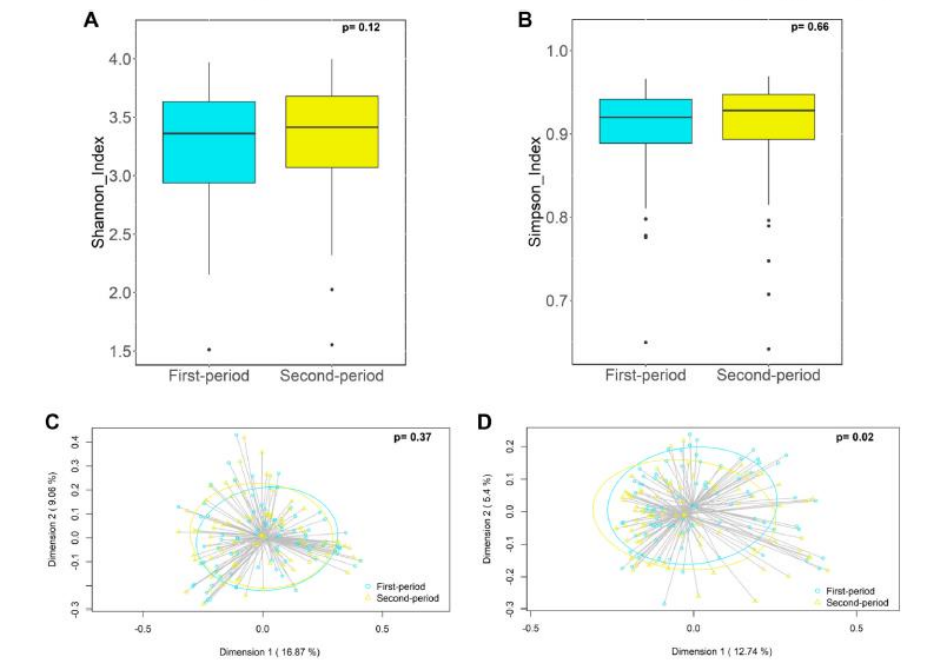

Fig. 1. Comparison between the alpha- and beta-diversities of the faecal microbiome, at the amplicon sequence variants (ASVs) level, in the human faeces from the same 82 residents in LTCFs, in the pre-intervention (first-period) and intervention (second-period) periods, 14 months apart (A-D), and from residents with negative (No MDRO) and positive (MDRO) MDR bacterial colonisation (E-H), respectively. Alpha-diversity (FDR-corrected Friedman test): i) Shannon diversity index (A) 3.36 (2.94–3.63) and 3.41 (3.07–3.68), p = 0.12, and (E) 3.38 (3.02–3.67) and 3.34 (2.9–3.51), p = 0.27; ii) Simpson diversity index (B) 0.92 (0.89–0.94) and 0.93 (0.89–0.95), p = 0.66, and (F) 0.92 (0.89–0.95) and 0.90 (0.87–0.93), p = 0.09. Beta-diversity (nonparametric MANOVA test): i) Principal coordinate analysis (PCoA) plots based on the Bray–Curtis dissimilarity (relative abundance) (C) p = 0.38 and (G) p = 0.17; ii) PCoA plots based on the Jaccard's coefficient for binary data (presence/absence): (D) p = 0.02; and (H) p = 0.33.

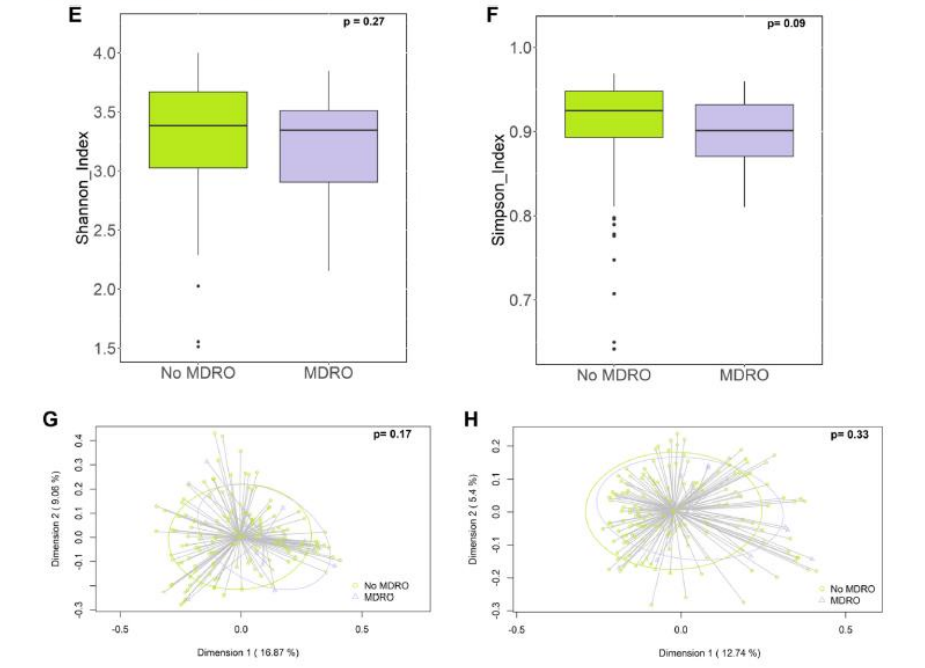

Fig. 1. (*continued*)

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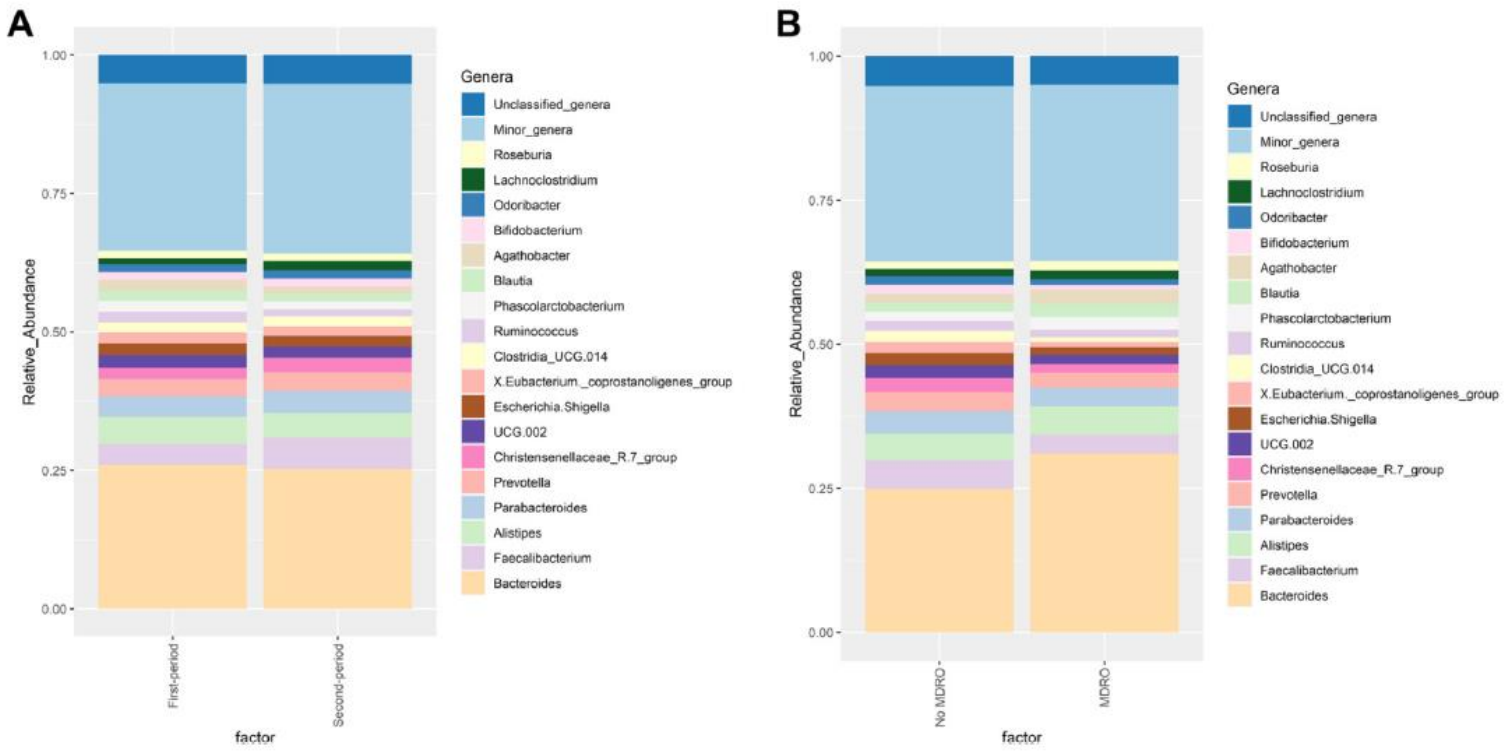
PROA-SENIOR: impacto ecológico

Journal of Infection 87 (2023) 166–170



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Subdirección General de Evaluación y Fomento de la Investigación

2023

Expediente Nº PI23/00180

TITULO: Formación y retroalimentación periódica como estrategias para la optimización del uso de los antimicrobianos en centros sociosanitarios (EduFAST)

INVESTIGADOR/A PRINCIPAL: Ana Belén Guisado Gil

CO-INVESTIGADOR/A PRINCIPAL: María Victoria Gil Navarro

TIPO DE PROYECTO: (•) INDIVIDUAL ( ) COORDINADO ( ) MULTICÉNTRICO CON UN SOLO CENTRO BENEFICIARIO ( ) MULTICÉNTRICO CON VARIOS CENTROS BENEFICIARIOS

Formación y retroalimentación periódica como estrategias para la optimización del uso de los antimicrobianos en centros sociosanitarios (EduFAST)

Objetivo:

- El objetivo de este proyecto es **desarrollar y evaluar el impacto de una plataforma web (EduFAST),** que permita la formación de los profesionales, la monitorización y retroalimentación periódica de los equipos PROA en centros sociosanitarios con indicadores de uso de antimicrobianos y resistencias microbianas.

Belén Guisado-Gil

Diversos escenarios de uso de antimicrobianos

BMR

PROA

Diversos escenarios de uso de antimicrobianos

BMR

PROA

Retos PROA en CCSS

- Documento PROA adaptado
  - Equipos
  - Indicadores
  - Intervenciones
- **Implementación**
- Coordinación
  - Primaria, hospital y CCSS
  - PROA y prevención y control infección
- Recursos
  - Normativa
  - Humanos
  - Técnicos

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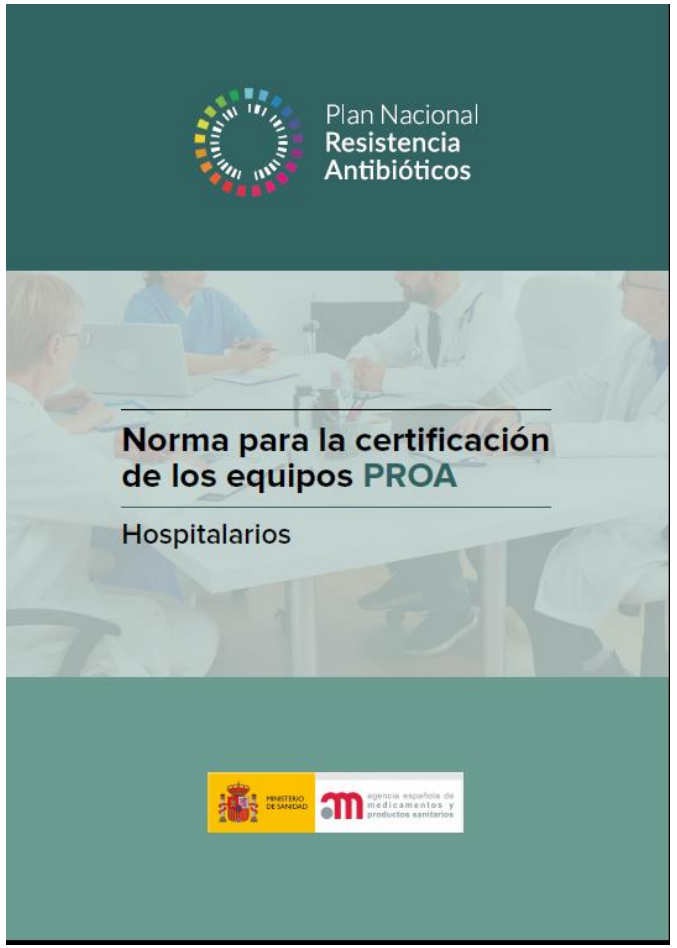
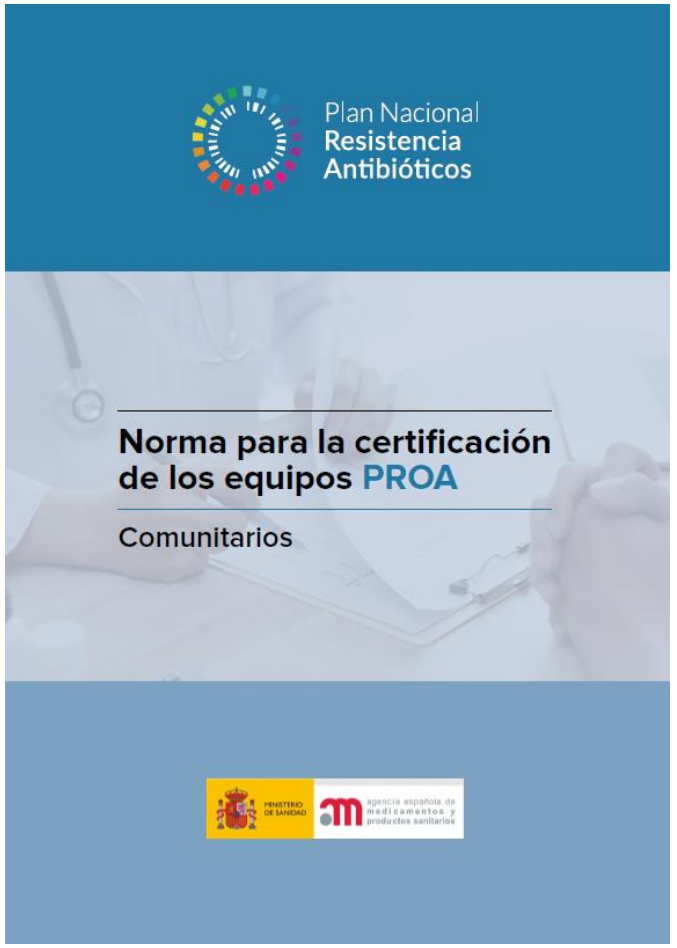
- Liderazgo profesional
  - Sociedades científicas
    - Primaria y Hospital
  - Equipos PROA
    - Primaria y Hospital
  - Equipos control infección
- Apoyo institucional
  - PRAN
  - Consejerías
  - Empresas privadas
- Programas autonómicos



Abordaje integral de las infecciones y las resistencias a antimicrobianos en los centros residenciales de larga estancia de personas mayores

Fecha: 1 de febrero 2024

Lugar: Ministerio de Sanidad. Paseo del Prado 18-20, 28071. Madrid.



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